

REMARKS

Claims 1-6 and 9-14 are currently being prosecuted. Independent claims 1 and 6 are amended, and dependent claims 13 and 14 are added. Claims 7 and 8 were previously cancelled. The Examiner is respectfully requested to reconsider his rejections in view of the Amendments and Remarks as set forth hereinbelow.

Examiner Interview

The Applicants wish to thank the Examiner for the courtesies extended to Applicants' representative, James M. Slattery, Registration No. 28,380, during the interview conducted in May 2005. During the interview, the Examiner indicated that he would not act on the Amendment filed on April 22, 2005. The Examiner stated that he would wait for the present Supplemental Amendment before he further reviewed this application.

Rejection Under 35 U.S.C. §112, first paragraph

As previously stated, Claims 1 and 6 stand rejected under 35 U.S.C. § 112, second paragraph, as failing to comply with the enablement requirement. This rejection is respectfully traversed.

In order to overcome this rejection, Applicants have amended claims 1 and 6 to recite, *inter alia*, "a microphone ... for detecting said noise of which sound pressure level is high...." Support for this amendment can be seen on page 31, lines 14-19 of the

specification. Further, page 30, lines 4 and 5 of the specification states “Output signals from the microphones 46A, 46B are used as error signals”.

The Applicants respectfully submit that claims 1 and 6, as amended, are fully supported by and adequately described in the written description of the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejection Under 35 U.S.C. §103(a)

Claims 1-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakao et al. (U.S. 5,651,072) in view of Flaherty (U.S. 5,734,727);

Claims 6, 9, 10, and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakao et al. in view of Flaherty et al. and Mason et al. (U.S. 5,410,607); and

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakao et al. as modified by Flaherty et al. as applied to claim 1 above, and further in view of Mason et al.

These rejections are respectfully traversed.

Amendments to Independent Claims 1 and 6

As previously stated, while not conceding the appropriateness of the examiner’s rejection, but merely to advance the prosecution of the present application, each of independent claims 1 and 6 has been amended to include a combination of elements including, *inter alia*,

a passenger compartment of a vehicle with a fixed roof; and a microphone disposed in the passenger compartment of the vehicle with the fixed roof, the position being centrally located on the fixed roof of the vehicle.

As set forth in claim 1, the present invention sets forth a combination of elements including a microphone disposed in the passenger compartment of the vehicle with the fixed roof, the position being centrally located on the fixed roof of the vehicle, as illustrated in Fig. 1 and discussed on page 10, line 23 to page 11, line 1 of the specification. In addition, support for the limitations set forth in claim 1 can be found on page 12, lines 19-21:

“The microphones 40, 41, 42 are positioned respectively near the base of the front seat 31A or 31B, near the center of the roof 34”

Further, by positioning the microphones at vibrational antinodes of the acoustic normal mode of the passenger compartment and using their output signals as reference signals, the active noise control system is capable of cancelling out noise in the passenger compartment based on low-frequency road noise. See, page 14, lines 18-23 of the present application.

As a result, as shown in Fig. 8, a noise cancellation effect of the active noise control system for cancelling noise in the passenger compartment based on low-frequency road noise is achieved by using the output signals from the microphones as reference signals. In Fig. 8, noise which is attenuated by the active noise control system is indicated by the solid-line curve, and noise which is not attenuated by the active noise control system is indicated

by the broken-line curve. The comparison between these curves clearly shows that the active noise control system is effective to cancel out the noise, especially the noise at 80 Hz. See, page 15, line 21 to page 16, line 4.

The microphone is disposed centrally in the vehicle having a fixed roof for positioning the microphone the farthest from the side windows of the vehicle. Thus, the influence of external noises, the sound pressure level detected by the microphone, from the side windows such as wind roars will be as small as possible. As a result, the noise whose sound level is high in the passenger compartment can be detected to a relatively large extent. With the present invention, based on the detected signals of the microphone disposed in a passenger compartment of a vehicle having a fixed roof, the noises whose sound level is high in the passenger compartment can be attenuated or reduced effectively.

By contrast, as acknowledged by the Examiner on page 4 of his rejection, "Nakao does not clearly teach a microphone disposed centrally in the width direction of the vehicle".

Regarding the Flaherty et al. document, this document merely discloses a vehicle with a sunroof and microphones 51 and 53 mounted adjacent to sunroof tub 41 and immediately adjacent to the sunroof opening so as to sense the wind buffeting-caused vibrations at the sunroof opening. Therefore, the Flaherty et al. device cannot achieve the effect of the present invention, i.e., to prevent the microphone from being subject to an airflow. Thus, since the Flaherty et al. document teaches a device directed to a totally different problem

from that faced by the present inventors, it is not proper to combine Flaherty et al. with Nakao et al. to reject the claims of the present invention.

Regarding the Mason et al. document, this document is merely cited to teach noise ranges of a noise control system. Therefore, Mason et al. cannot make up for the deficiencies of Nakao et al. and Flaherty et al.

Accordingly, the structure and effects of the claimed inventions according to independent claim 1, which is directed to a combination of elements including a passenger compartment of a vehicle with a fixed roof and a microphone disposed in the passenger compartment and centrally located on the fixed roof of the vehicle, is not shown or suggested by the cited references, whether considered separately or in combination.

For the Examiner's understanding of the present invention, the microphones in the first embodiment and a second embodiment can be classified as follows:

1. a microphone for generating a reference signal; and
2. a microphone for generating an error signal, as follows:

FIRST EMBODIMENT

- i. microphone 26 is a microphone for generating an error signal.
- ii. microphones 40, 41, 42, 40A, 42A are microphones for generating a reference signal.

SECOND EMBODIMENT

i. microphones 43, 44, 45, 46A, 46B are microphones for generating an error signal.

Note that the microphones in the third embodiment cannot be classified in this way.

Similarly, the structure and effects of the claimed inventions according to independent claim 6, which is directed to a combination of elements including a passenger compartment of a vehicle with a fixed roof and a microphone disposed in the passenger compartment and located at an antinode of a primary or secondary acoustic normal mode of the passenger compartment of the vehicle for detecting the noise of which sound pressure level is high, is not shown or suggested by the cited references, whether considered separately or in combination. As set forth on page 35, line 8 to page 36, line 5 of the specification, the microphone is housed together with the feedback control circuit in the storage box. The storage box does not need to be positioned centrally or in the width direction of the fixed roof. Thus, claim 6 has been amended to delete these limitation.

Added Dependent Claims 13 and 14

The examiner will note that dependent claims 13 and 14 have been added in the Amendment filed on April 22, 2005 to set forth additional novel features of the present invention.

All dependent claims are in condition for allowance based on their dependence on allowable independent claims, or due to the additional novel features set forth therein.

Therefore, all claims of the present application are in condition for allowance.

No Prosecution History Estoppel

Claims 1 and 6 have been amended to clarify the claimed subject matter. No prosecution history estoppel would apply to the interpretation of the limitations set forth in claims 1-6 and 9-14 in view of the fact that this subject matter has been continuously presented since the original filing date of the present application.

CONCLUSION

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination.

In view of the above amendments and remarks, reconsideration of the rejections and allowance of all of the claims are respectfully requested.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (703) 205-8000 in the Washington, D.C. area.

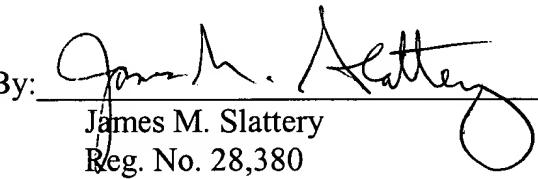
Application No.: 09/522,178
Supplemental Amendment dated June 9, 2005
In Further Reply to Office Action of January 25, 2005

Attorney Docket No: 0303-0420P
Art Unit: 2543
Page 14 of 14

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By: 
James M. Slattery
Reg. No. 28,380

JMS/mmi/ljr

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

0303-0420P